

Between San Francisco and Honolulu many *Diomedea immutabilis* and one *D. nigripes* were seen. These birds were smaller, rather more active, and with a more irregular flight than any of our species.

What I took to be the White Tern (*Gygis alba*) was often seen between Fiji and Auckland. I have a note, "Most beautiful bird, with a very irregular flight, continually checking and changing direction, sometimes 100 feet up or just over the water; wing beats about 120 to the minute."

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## Round the Lamp

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The moth round the candle is familiar to all, but the large flocks of nocturnal sea-birds, wheeling round and round the lighthouse in the long, lonely watches of the night is a sight seen by very few, and entirely unknown to many. On bright, clear nights the dim, shadowy forms of the Petrels are occasionally seen crossing the beams of light; not a sound is heard, although the birds are as frequent then as on any thick, misty night, when the shifting rays of the powerful light appear as long, thin shafts piercing the thickening air.

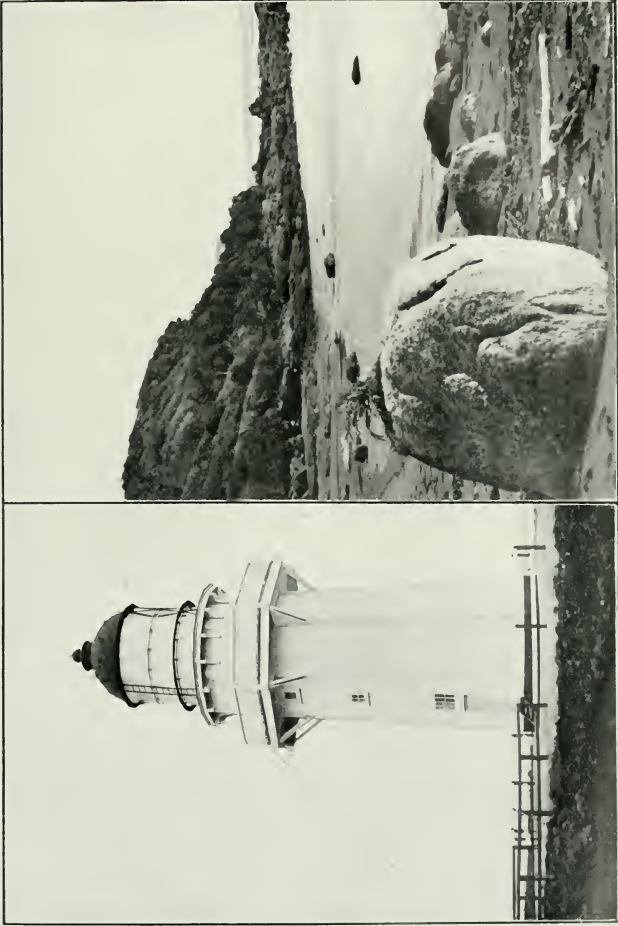
The lighthouse stands 180 feet above high-water, on Puysegur Point, at the south-western corner of the South Island. The light itself is a revolving one, and shows only outward over the sea; that is to say, the panes on the landward side are darkened. These blind panes, which occupy about one-third of the actual window area of the lantern, suddenly cutting off the light dazzling a bird approaching the tower along the beams, save many unfortunates from an untimely end, for as the particular beam of light in which the bird happens to be travelling is cut off, the bird usually has time to turn aside, or at most strikes the tower at an angle, and is often only slightly injured.

In circling around the lighthouse, the bewildered birds usually follow the revolutions of the light, though sometimes when the mist closes in during the early part of the night—meaning that is within two hours or so of sunset—the various Petrels are noted flying toward the tower from a southerly or south-westerly direction—the direction of Windsor Point and the Solander Islands.

It is rather difficult to offer any explanation as to the manner in which the light attracts the birds, but that they are abso-

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\* Until recently at the lighthouse, Puysegur Pt., N.Z.



Paradise Beach, with the Lighthouse in the distance.

The Lighthouse, Puysegur Point.

Photos. by R. Stuart-Sutherland, F.Z.S., R.A.O.U.



Upper—A Dove-Petrel injured by striking the lighthouse.  
Lower—Coast scene near Fuysegur Pt. Lighthouse.

Photos. by R. J. Sutherland, F.Z.S., R.A.O.U.

lutely powerless to resist the attraction is very evident. To take a typical case, what I always refer to as "a bird night"—namely, the night of December 6th, 1921, or, perhaps, more correctly, I should say the early morning of December 7th.

The weather for this particular day and night was logged as "Wind, S.E. to N.E.; very light, with thick, misty rain, to dense fog." I reached the lighthouse at midnight (my watch was from midnight to daylight), and very few birds were about, though their shrill cries could be heard as they flew around below, and only an occasional crash against the windows told of the thickening and closing in of the fog.

At about 1 a.m., following five or six loud crashes, I went out on to the balcony to see what was doing. Where the long, thin shafts of light were broken up by the eddying clouds of mist, perhaps some sixty or more yards from the tower, the flocks of Petrels were wheeling swiftly round and round. Suddenly, with a shrill, piercing call, a bird would partially turn aside, and fly rapidly toward the windows. The bewildered creature could be seen quite plainly as it came nearer, struggling desperately to turn aside; but its efforts were of no avail: it crashed against the iron frame of one of the windows, and was instantly killed. I picked up the bird as it dropped down on to the balcony, and found it was a Mottled Petrel (*Pterodroma inexpectata*), a species somewhat rare here, and of which I have secured only five specimens in three years.

Climbing the ladder to the coping around the lantern itself, I saw seven Grey-backed Storm Petrels (*Garrodia nereis*), only one of which was apparently injured, the unlucky one having broken its wing. The birds were crashing in rapidly now, Broad-billed Dove-Petrels (*Prion vittatus*) being by far the most plentiful. Nine of these struck the panes in less than half that number of minutes, and of this nine, two were killed outright, and three were badly injured.

Curiously, very few birds are injured about the head. Of all the specimens of various species which I have dissected in three years, I have noted only about a dozen, and these were mostly Mutton-birds (*Puffinus griseus*). The injuries were broken wings, broken legs, badly smashed bodies, or, much more rarely, broken necks.

Sitting inside the tower, one can tell by the sound of the crash the species to which the unlucky bird belongs. I cannot record that the windows have been broken on any occasion, which fact is somewhat surprising when one considers the great force with which a Mutton-bird strikes. I have been told that at the Moeraki lighthouse the panes have been more than once smashed by Black Swans (introduced from Australia), but although these birds are sometimes observed during the day in this district, none has so far been noted at night. Apart from the numerous Petrels of several species, some few land birds have at odd times been noted around the light, but apparently the

situation is out of the line of any migratory streams, for the appearances are very erratic.

The following is a complete list of the birds observed around the lighthouse whilst the light has been burning during the period March, 1919, to January, 1922.

Names according to Sir W. L. Buller's "Supplement to the Birds of New Zealand," 1905, in brackets, following the R.A.O.U. Checklist name where it differs:—

1. *Prion vittatus*. Broad-billed Dove-Petrel. Whiroia.—Sometimes in hundreds, and observed during every month of the year.

2. *Prion banksi*. Banks Dove-Petrel.—Rather uncommon.

3. *Prion desolatus*. Fairy Dove-Petrel. Titi wainui.—Plentiful, but not quite so common as the Broad-billed. Three only of the four species of Dove-Petrels have been noted, *P. ariel* not having so far been taken.

Professor Mills Loomis lists all the four under one species (*Pachyptila vittata*) but after having carefully examined numerous specimens, I can hardly agree with this finding. He says: "I have searched the literature in vain for a description of constant characters separating '*P. banksi*,' '*P. desolata*,' and '*P. brevirostris*,' from '*P. vittata*.' So far as the evidence shows, the variations upon which these supposed species rest are inconstant, and therefore are not of specific significance; an absence of intergradation, not degree of variation, gives specific value to characters. The series before me is a meagre one, but it strengthens the conviction that the variations are all within the limits of a single species. Ample series from breeding stations alone will determine the precise nature of the variations."

The professor may be right, but all the birds I have examined were readily distinguishable—that is to say, there was no doubt as to which species a specimen belonged, for I find the sizes of the bills of the different species to be constant, and moreover the species differ as to general dimensions.

Hutton and Drummond are two authorities who cannot be overlooked, and they give,

#### Key to the Species.

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|---|-----------------------|
| (1). Wing from flexure, 9 to 10 inches.   | <i>P. vittatus</i> .  |
| Wing from flexure, 8 to 9 inches.         | 2                     |
| Wing from flexure, 6 to 7 inches.         | <i>P. ariel</i> .     |
| (2). Upper mandible convex on the margin. | <i>P. banksi</i> .    |
| Upper mandible straight on the margin.    | <i>P. desolatus</i> . |

The professor gives a series of measurements, and his largest and smallest specimens give the following:—

	Wing.	Tail.	Culmen.	Upper mandible,		Tarsus.
				Depth.	Width.	
Sex ♂	216.	103.	35.9	14.5	20.1	33.2
Sex ♀	169.	86.	23.3	7.8	9.5	29.

The following are the measurements of two of each species, taken "in the flesh," especially for this article:—

		Length.	Wing.	Tail.	Culmen.	Width at base of mandible.	Tarsus.
<i>P. vittatus</i>	♂	279.	234.	106.	36.	23.5	33.
"	♀	271.	231.	105.	34.5	22.	33.
<i>P. banksi</i>	♂	253.	218.	101.	29.	13.5	33.
"	♀	253.5	217.	100.	27.	13.	31.
<i>P. desolatus</i>	♂	241.	204.	97.	25.5	7.	29.
"	♀	242.	204.	96.	25.	7.	30.

For the present then I prefer to retain the separate species. The localities of the two specimens which I have quoted from Professor Loomis are given as (1) Chatham Islands, and (2) Nelson, N.Z. Judging from these localities and from the measurements, I should say that the species were: (1) *P. vittatus*, and (2) *P. ariel*.

As I stated before, I have not so far taken *P. ariel* at Puysegur Point, but Hutton and Drummond describe the bird as follows:—"Similar in colour to the others, but with a paler crown. Bill much narrower and more compressed; the sides of the maxilla nearly straight. Chin fully feathered. Length of the wing, 6.8 in. (172 mm.); of the tarsus, 1.2 in. (30 mm.). Breeds on the northern part of New Zealand."

4. *Pelecanoides exsul*. Diving Petrel. Kuaka.—Very plentiful, but only so, generally speaking, when the fog drifts up before midnight. Only on one or two occasions have these birds been observed around the tower after midnight. Over 250 were counted on the lighthouse balcony one evening in July, 1920. There is only one species for N.Z. I stated this belief over two years ago in an article published in the Christchurch (N.Z.) "Weekly Press." The measurements of a typical pair are:—

		Length.	Wing.	Bill.	Tarsus.
<i>P. exsul</i>	♂	203.	126.	16.	25.
"	♀	201.	127.	14.	24.

5. *Puffinus assimilis*. Allied or Forster's Shearwater. [Hakoakoa (sometimes)].—Hakoakoa is the native name usually applied to *Megalestris antarctica*, the Skua, Sea Hawk, or Sea Hen. Only two Allied Petrels have been killed against the tower, and both were males. One was killed August, 1919, and the other February, 1921. The two specimens are alike—upper surface dark slaty, and under surface white—save that one has the region around the vent dull brownish, whilst the other has this particular part pure white. The bill is black and 29 mm. in length, and the feet are dull brownish flesh colour. The complete measurements in the flesh of the two specimens are as follows:—

		Length.	Wing.	Bill.	Tarsus.
<i>Puffinus assimilis</i>	♂	299.	194.	29.	35.
"	♂	284.	192.	29.	31.

These birds are, I believe, the *P. obscurus* of Professor Loomis. Sir W. L. Buller (Supplement) and Hutton and Drummond ("Animals of N.Z.") list *P. obscurus* and *P. assimilis* as distinct species. They are apparently the light and dark phases of one form.

6. *Puffinus griseus*. Mutton Bird. Sooty or Sombre Shearwater. Titi. Oi.—Plentiful, but somewhat erratic in their appearances during the months of December, January, February, and March. A curious fact in connection with the Mutton-Birds is that on one night all the specimens killed against the lantern will be males, whilst on another night all will be females. These birds breed in the near vicinity, on Crayfish (Steep-to) Island, and it is possible that the sexes take turn about to secure food. Females containing partly developed eggs have been killed in early December. Young birds of the year can be distinguished from old ones by the colour of the legs and feet. Old birds have these parts bluish, whilst young ones have them brownish clive. The measurements of a typical pair are as follows:—

	Length.	Wing.	Bill.	Tarsus.
<i>Puffinus griseus</i> ♂	433.	310.	49.	55.
" " ♀	429.	304.	50.5	54.

7. *Pterodroma (Æstrelata) cooki*. White-winged (Cook) Petrel.—Only two specimens. One (female) in May, 1919, and one (male) in October, 1920. Measurements—

	Length.	Wing.	Bill.	Tarsus.
<i>P. cooki</i> ♂	314.	239.	27.	29.
" ♀	316.	237.	27.	28.

8. *Pterodroma inexpectata (Æstrelata gularis)*. Mottled or Scaled Petrel.—So named, I take it, on account of the scale-like marking on the forehead. On December 27th, 1920, one struck the panes and broke its wing. It proved to be a female, and contained an egg just ready to be laid. The egg is dead white in colour, and measures 54 x 38 mm. Since that date upwards of a dozen have been accidentally killed. Three in March, 1921; five in August, 1921; two in September, and two in December. These birds breed in the district, and, like the Mutton-Birds, all the examples killed on one night are of the one sex. The measurements are as follows:—

	Length.	Wing.	Bill.	Tarsus.
<i>Æstrelata gularis</i> ♂	346.	257.	26.	31.
" " ♀	344.	256.	26.	32.

The correct name of this species apparently should be *Pterodroma inexpectata* (Forster). The common name generally in use in New Zealand is Rain-Bird.

9. *Garrodia nereis*. Grey-backed Storm-Petrel. Reoreo.—The most seen on any one night was nine. Very few of these birds are killed outright, mainly, I suppose, by reason of their very light weight. Mostly a wing or a leg is broken. Storm-Petrels are purely nocturnal. Uninjured birds kept during the day very rarely attempt to fly away. Examples injured in October, November and December have the generative organs much enlarged. The following are the measurements of a pair injured at almost the same moment (1.30 a.m., December 7th, 1921):—

	Length.	Wing.	Bill.	Tarsus.
<i>Garrodia nereis</i> ♂	169.	137.	16.	31.
" " ♀	170.	137.	15.	31.

10. *Pelagodroma marina*. White-faced Storm Petrel.—Rather uncommon, only four having been taken in a period of nearly three years. One (female), May, 1919; two (females), January, 1920, and one (male) September, 1920. Measurements—

		Length.	Wing.	Bill.	Tarsus.
<i>Pelagodroma marina</i>	♂	199.	149.	17.	37.
"	♀	198.	150.	17.	38.

11. *Demiegretta sacra*. Blue or Reef Heron. Matuku.—On January 8th, 1920, one of these Herons was seen flying round and round the tower. The lamp had only been lighted about half an hour; the night was quite clear, and the weather very calm and settled. Sitting inside the lighthouse, I heard a peculiar and very loud call—a loud and long-drawn “quar, qu-ar, qu-a-ar,” just like the quack of the domestic Duck, only louder, longer drawn and unfinished. The bird was not more than ten feet from the lighthouse balcony, and was plainly visible. It flew round for about twenty minutes, and then made off towards Sealers’ Creek, but returned again shortly after 11 p.m., circled around again as before for some little time, and then flew towards Preservation Inlet.

12. *Urodynamis taitensis*. Long-tailed Cuckoo. Koekoea.—During February, 1921, during dull, thick weather, one of these Cuckoos was observed on the coping around the lantern. It was uninjured. Seeing that the two Cuckoos observed in New Zealand are truly migratory, it is rather surprising perhaps that more examples are not noted. The birds of New Zealand are strictly protected, so readers will realise what I mean when I say that I had no luck on the above two occasions.

13. *Limosa novae-zealandiae*. Godwit. Kuaka.—(Note.—Kuaka is also the native name in many places applied to the Diving Petrel.) Rather uncommon; about a dozen observed in three years, but only one killed. The bird was in fine plumage and condition. The measurements are as follows:—

		Length.	Wing.	Bill.	Tarsus.
<i>Limosa novae-zealandiae</i>	♀	430.	236.	114.	57.

14. *Zosterops cerulescens (lateralis)*. Silver-eye or Wax-eye. Tauhou.—Common at times, perched on the grating and hand-rail around the lantern. They are usually noted in the early morning, an hour or so before daylight. Only a very few are killed. Observed during the months of April, May, June, September, October, and December. Most plentiful in the district during June.

15. *Anthus novae-zealandiae*. New Zealand Pipit or Groundlark. Pohoihoi.—Only one killed. The species is observed at Puysegur only during December and January.

16. *Halcyon vagans*. Kingfisher. Kotare.—One only observed, perched on the hand-rail early morning, March 29th, 1921. This is a resident species, but I know of only three pairs in the district round about Puysegur Point.

17. *Turdus philomelus clarkei*. Thrush (imported).—Small flocks of a dozen to a score on rare occasions observed perched on the hand-rail and always crowded together as if for warmth. May, June, July and August are the usual months.

18. *Turdus merula merula*. Blackbird (imported).—Rather uncommon, a single one only having been observed on two occasions—June, 1919, and August, 1921.